

# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : NEC CORP

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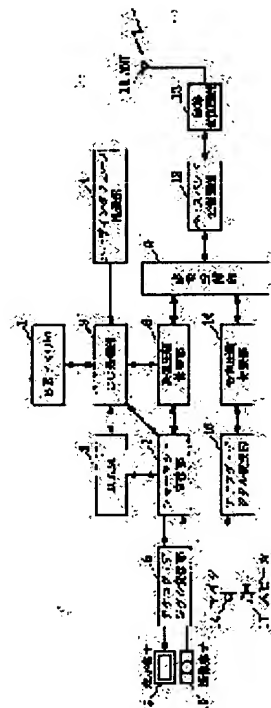
(72)Inventor : NAKAMURA YOSHITAKA  
HIKISHIMA NAOKI

## (54) VIDEO TELEPHONE APPARATUS

(57)Abstract:

PROBLEM TO BE SOLVED: To transmit a talker's feeling by images while protecting privacy.

SOLUTION: An image pickup element 10 shoots a talker's image. An EEPROM 1 stores substitution images instead of the actual images of a talker in advance. An CG processing section 3 selects either the substitution images being stored at the EEPROM 1 or actual images that have been shot by the image pick up element 10 for transmission according to the talker's instruction.



## LEGAL STATUS

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CLAIMS

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[Claim(s)]

[Claim 1] TV phone equipment characterized by having an image pick-up means to photo a message person's image, a storage means to memorize beforehand the alternative image used as instead of [ of a message person's real image ], and a processing means to take out said alternative image from this storage means, and to transmit to the other party.

[Claim 2] It is TV phone equipment characterized by for said processing means changing said alternative image into a video-signal format of TV phone equipment in TV phone equipment according to claim 1, and transmitting.

[Claim 3] It is TV phone equipment characterized by for said processing means choosing the alternative image stored in said storage means, or the real image photoed with said image pick-up means in TV phone equipment according to claim 1 according to directions of a message person, and transmitting. *direction*

[Claim 4] It is TV phone equipment characterized by including the character string which transmits said alternative image to the other party in TV phone equipment according to claim 1.

[Claim 5] It is TV phone equipment characterized by for said processing means choosing the alternative image which should be transmitted out of said two or more alternative images prepared beforehand in TV phone equipment according to claim 1 according to directions of a message person, and transmitting.

[Claim 6] It is TV phone equipment characterized by to store in said storage means the alternative image which said processing means generated said alternative image in TV phone equipment according to claim 1 by compounding the components image which chose the components image which serves as a component of said alternative image out of two or more components images prepared beforehand according to directions of a message person, and was chosen, and generated.

[Claim 7] It is TV phone equipment characterized by said processing means changing the color of said selected components image in TV phone equipment according to claim 6 according to directions of a message person.

[Claim 8] It is TV phone equipment characterized by determining the location of said selected component [ set to TV phone equipment according to claim 6, and / means / said / processing ] image in said alternative image according to directions of a message person.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to TV phone equipment.

[0002]

[Description of the Prior Art] Although telephone equipment existed as a communication tool between remote places conventionally, telephone equipment could not but be an audio means of communication, and was inadequate as a feeling means of communication. So, recently, the TV phone equipment which can take communication on the both sides of voice and an image has appeared on the market.

[0003]

[Problem(s) to be Solved by the Invention] In a TV phone, a message person's figure and background also get across to a partner besides voice. For this reason, there is a problem of carrying out the partner \*\*\*\*\* pan of the individual information. As an image was not transmitted, the approach only had choosing an audio message to get a telephone call suddenly from a partner and show a partner a self-portrait and a background especially.

[0004] Then, the TV phone equipment which transmits a message person's feeling by the image is proposed, protecting privacy by transmitting alternative images, such as a character image, instead of a real map (JP,9-331509,A, JP,2000-175168,A). However, in these TV phone equipments, since he was trying to incorporate an alternative image from equipments, such as a personal computer, with a telephone equipment simple substance, there was a trouble that an alternative image could not be edited and created and it could not transmit. It aims at offering the TV phone equipment which can transmit a message person's feeling by the image, protecting [ this invention was made in order to solve the above-mentioned technical problem, and ] privacy. Moreover, this invention aims at offering the TV phone equipment which can edit and create an alternative image and can be transmitted with a telephone equipment simple substance.

[0005]

[Means for Solving the Problem] The TV phone equipment of this invention has an image pick-up means (10) to photo a message person's image, a storage means (1) to memorize beforehand the alternative image used as instead of [ of a message person's real image ], and a processing means (3) to take out said alternative image from this storage means, and to transmit to the other party. Moreover, in the example of 1 configuration of the TV phone equipment of this invention, said processing means changes said alternative image into a video-signal format of TV phone equipment, and is transmitted. Moreover, in the example of 1 configuration of the TV phone equipment of this invention, said processing means chooses the alternative image stored in said storage means, or the real image photoed with said image pick-up means according to directions of a message person, and is transmitted.

Moreover, in the example of 1 configuration of the TV phone equipment of this invention, said alternative image contains the character string which transmits to the other party. Moreover, in the example of 1 configuration of the TV phone equipment of this invention, said processing means chooses the alternative image which should be transmitted out of said two or more alternative images prepared

beforehand according to directions of a message person, and is transmitted.

[0006] Moreover, said processing means chooses the components image which serves as a component of said alternative image out of two or more components images prepared beforehand according to directions of a message person, compounds the selected components image and stores in said storage means the alternative image which generated and generated said alternative image in the example of 1 configuration of the TV phone equipment of this invention. Moreover, in the example of 1 configuration of the TV phone equipment of this invention, said processing means changes the color of said selected components image according to directions of a message person. Moreover, it sets for the example of 1 configuration of the TV phone equipment of this invention, and said processing means determines the location of said selected components image in said alternative image according to directions of a message person. *color*

[0007]

[Embodiment of the Invention] The gestalt of operation of this invention is explained to a detail with reference to a drawing below [the gestalt of the 1st operation]. Drawing 1 is the block diagram showing the example of 1 configuration of the mobile videophone equipment used as the gestalt of operation of the 1st of this invention. In drawing 1, rewritable EEPROM (it abbreviates to ROM Electrically Erasable and Programmable ROM and the following) and 2 are RAM (Random Access Memory) for which 1 stores graphical data and in which temporary data are stored electrically.

[0008] CG processing section 3 processes the graphical data read from ROM1. The data processed in CG processing section 3 are used in the format conversion section 7 or the image compression elongation section 8 mentioned later. The user interface processing section 4 tells the directions from a user to CG processing section 3. The display devices 5, such as a liquid crystal panel, display the analog output image from the analog-to-digital conversion section 6 mentioned later.

[0009] The analog-to-digital conversion section (AD/DA converter) 6 changes the analog signal from the image sensor 10 mentioned later into the digital signal which the format conversion section 7 can use while changing the digital signal from the format conversion section 7 into the analog signal which can use a display device 5. The format conversion section (format converter) 7 performs signal transformation between the analog-to-digital conversion section 6, the image compression elongation section 8, and CG processing section 3. The image compression elongation section (video codec) 8 performs compression or elongation of a video signal.

[0010] The demultiplexing section (MUX/DEMUX) 9 divides the input signal from the baseband strange recovery section 12 into a sound signal and a video signal while passing it to the baseband strange recovery section 12 which multiplexes and mentions later the speech compression elongation section 16 to the video signal from the image compression elongation section 8, and the sound signal mentioned later. An image sensor 10 photos a user's image and outputs an analog video signal. A radio antenna 11 transmits and receives an electric wave.

[0011] The baseband strange recovery section 12 carries out the baseband recovery of the signal from the wireless strange recovery section 13, and outputs it to the demultiplexing section 9 while outputting it to the wireless strange recovery section 13 which carries out a baseband modulation and mentions the signal from the demultiplexing section 9 later. The wireless strange recovery section 13 carries out the wireless recovery of the signal received with the radio antenna 11, and outputs it to the baseband strange recovery section 12 while it carries out the wireless modulation of the signal from the baseband strange recovery section 12 and outputs it to a radio antenna 11. *modulation*

[0012] A microphone 14 collects a user's voice and outputs an analog sound signal. The analog-to-digital conversion section (AD/DA converter) 15 changes the analog signal from a microphone 14 into the digital signal which the speech compression elongation section 16 can use while changing it into the analog signal which can use the loudspeaker 17 which mentions the digital signal from the speech compression elongation section 16 later. The speech compression elongation section (audio codec) 16 performs compression or elongation of a sound signal. A loudspeaker 17 reproduces the analog signal sent from the analog-to-digital conversion section 15.

[0013] Hereafter, actuation of the mobile videophone equipment of the gestalt of this operation is

explained. Drawing 2 is the flow chart Fig. showing the TV phone dispatch procedure sent from the TV phone equipment of the gestalt of this operation. First, it chooses whether the user of mobile videophone equipment transmits the real image photoed with the image sensor 10 to a partner terminal, or the alternative image (a still picture or animation) which imitated his face is transmitted to a partner terminal (drawing 2 step 101). When not choosing step 101, what was set up beforehand is chosen.

[0014] After selection, the control section which mobile videophone equipment does not illustrate will serve as message initiation, if call origination actuation which calls a partner terminal is performed (step 102) and a partner terminal answers (it sets to step 103 and is YES) (step 104). A control section performs clear back actuation which cuts a line connection with a partner terminal after message termination (step 105). While the TV phone equipment of the gestalt of this operation talks the image to transmit over the telephone, it can be changed to arbitration.

[0015] Drawing 3 is the flow chart Fig. showing the TV phone arrival procedure of receiving a message with the TV phone equipment of the gestalt of this operation. The user of mobile videophone equipment will choose whether the real image photoed with the image sensor 10 is transmitted to a partner terminal, or the alternative image which imitated his face is transmitted to a partner terminal, if the call from a partner terminal occurs (it sets to the drawing 3 step 201, and is YES) (step 202). When not choosing step 202, what was set up beforehand is chosen.

[0016] After selection, the control section which mobile videophone equipment does not illustrate performs call-in actuation which answers the call of a partner terminal (step 203), and serves as message initiation (step 204). A control section performs clear back actuation which cuts a line connection with a partner terminal after message termination (step 205).

[0017] Inside the TV phone, processing which is explained below is performed during the message of step 104,204. Drawing 4 is the flow chart Fig. showing the procedure in which a real image is transmitted to a partner terminal. It compresses by the methods (for example, ITU-T G.723.1, 3GPPAMR, etc.) by which the digitized voice signal into which this analog sound signal was changed into the digitized voice signal (step 302), and the speech compression elongation section 16 was inputted from the analog-to-digital conversion section 15 when the analog sound signal was inputted from the microphone 14 (step 301) was specified in the analog-to-digital conversion section 15 for TV phone equipments at the speech processing side (step 303).

[0018] On the other hand, it changes into the digital signal of the YUV format that the analog-to-digital conversion section 6 is from the brightness component Y and the color difference components U and V on an image processing side about the digital video signal into which the format conversion section 7 was inputted from the analog-to-digital conversion section 6 by changing this analog video signal into a digital video signal, and continuing when the analog video signal was inputted from the image sensor 10 (step 304) (step 305). The image compression elongation section 8 compresses the YUV signal inputted from the format conversion section 7 by the methods (for example, ITU-T H.263, ISO/IEC MPEG4, etc.) to which it was specified for TV phone equipments (step 306).

[0019] The above processings are speech processing and image processing sides, and are performed in parallel. The video signal inputted from the sound signal and the image compression elongation section 8 which were inputted from the speech-compression elongation section 16 multiplexes (step 307), the demultiplexing section 9 carries out the baseband modulation of the multiplexed signal inputted from the demultiplexing section 9 (step 308), and the baseband strange recovery section 12 carries out the wireless modulation of the signal inputted from the baseband strange recovery section 12, and it outputs the wireless strange recovery section 13 to a radio antenna 11 (step 309). The transmission wave obtained in the wireless strange recovery section 13 is transmitted to a base station from a radio antenna 11 (step 310).

[0020] Drawing 5 is the flow chart Fig. showing the procedure in which the alternative image which consists of a still picture or an animation instead of a real image is transmitted to a partner terminal, and has given the same sign to the same processing as drawing 4. Processing of steps 301-303 by the side of speech processing is the same as the case of the real image of drawing 4.

[0021] In an image processing side, the data (standard data when not set up) of the GIF format set as

beforehand or a JPEG format are chosen and used instead of the real image photoed with the image sensor 10 out of the graphic (it abbreviates to CG hereafter) data memorized by ROM1.

[0022] The alternative image definition data for defining an alternative image It has a format like drawing 6 . For example, CG data of the profile of a face, CG data of a hair style (hair), The pointer in which the storing location of each file called CG data of accessories, such as CG data of eyebrows, CG data of an eye, CG data of a nose, CG data of opening, CG data of a lug, and a ribbon, is shown, It consists of information which shows the arrangement location like the profile in an alternative image, hair, eyebrows, an eye, a nose, opening, a lug, and each part of an accessory, and file length.

[0023] CG processing section 3 offers a creation screen as shown in drawing 7 to a user for creation of an alternative image. Drawing 7 is drawing showing the creation screen displayed on the display device 5 of mobile videophone equipment. A creation screen mainly consists of a tool bar 18, a Maine drawing window 19, a parts selection window 20, and a selection pointer 21.

[0024] The selection pointer 21 can be operated through the user interface processing section 4, by choosing each command character "File" of a tool bar 18, "Edit", and "Help" with the selection pointer 21, as shown in drawing 8 R> 8, the sub menu of a pulldown type is displayed, and a user can perform desired processing by choosing the function in it with the selection pointer 21 further. If "File" is chosen, functions, such as new creation of an alternative image, file preservation, and file updating, can be chosen, if "Edit" is chosen, functions, such as undoing, copy, and attachment, can be chosen, and if "Help" is chosen, functions, such as a call of a help file, can be chosen.

[0025] CG under drawing is displayed on the Maine drawing window 19. In the example of drawing 7 , the profile of a face is arranged in the Maine drawing window 19. The parts selection window 20 is prepared for every a profile, hair, eyebrows, an eye, a nose, opening, lug, and each part grade [ in addition to this / (accessory) ]. A user can change the parts selection window 20 by choosing a desired part out of the left end tab 22 using the selection pointer 21. In the example of drawing 7 , the eye will be chosen from the inside like each part.

[0026] Two or more preparation of the standard CG data is beforehand carried out at ROM1 for every a profile, hair, eyebrows, an eye, a nose, opening, lug, and each part grade [ in addition to this / (accessory) ]. CG processing section 3 will display two or more CG currently beforehand prepared for the part chosen as the viewing area 23 of this parts selection window 20, if the parts selection window 20 of a certain part is chosen. A user can choose desired CG with the selection pointer 21 from each displayed CG.

[0027] Moreover, when there is many CG, the part is displayed on a viewing area 23. CG processing section 3 will scroll a viewing area 23 according to the motion, if a user moves the right end scroll bar 24 using the selection pointer 21. Thereby, a user can see all CG currently prepared for the selected part.

[0028] Moreover, there is a slider 25 which shows each gradation (each color 256 gradation) of the three primary colors R of light (red), and G (green) and B (blue) in the lower part of the parts selection window 20. Although the user was displayed on the viewing area 23, after he chooses desired CG from inside, by moving the slider 25 for each colors using the selection pointer 21, he can change each gradation of RGB of selected CG, and can decide the color of selected CG.  $(R, G, B)_{In} = (0, 0, 0)$ , in black and  $= (R, G, B) (255, 255, 255)$ , it becomes white.

[0029] And a user can drag selected CG with the selection pointer 21, and can arrange it in the Maine drawing window 19. In the Maine drawing window 19, the X-axis is set as a longitudinal direction, the Y-axis is set as the lengthwise direction, and zero  $(X, Y) = (0, 0)$  is set as the upper left edge. By such setup, CG processing section 3 can recognize the coordinate by which CG has been arranged on the Maine drawing window 19. This coordinate is used as information which shows the arrangement location of CG in the alternative image definition data explained by drawing 6 .

[0030] CG is chosen as mentioned above for every each part grade of a profile, hair, eyebrows, an eye, a nose, opening, a lug, and an accessory, a color is determined, and the alternative image which imitated a user's face by arranging this CG in the Maine drawing window 19 is done. If a user chooses "Save" from the sub menu of "File" of a tool bar 18, CG processing section 3 creates alternative image definition data

like drawing 6 which consist of the arrangement location and the file length of the pointer to CG data like each part, and CG data like each part, and stores them in ROM1 after creation termination of an alternative image while it stores CG data like each part of the created alternative image in ROM1.

[0031] CG processing section 3 takes out the alternative image definition data which were created in advance and registered from ROM1 in step 404 of drawing 5. And CG processing section 3 takes out CG data like each part from ROM1 based on each pointer in this alternative image definition data, and arranges these CG data in an alternative image based on the arrangement positional information to which it corresponds in alternative image definition data. In this way, CG processing section 3 compounds CG data like each part, and changes into the digital signal of a YUV format the alternative image data which created and created alternative image data (step 405).

[0032] The image compression elongation section 8 compresses the YUV signal inputted from CG processing section 3 like the case of a real image by the methods (for example, ITU-T H.263, ISO/IEC MPEG4, etc.) to which it was specified for TV phone equipments (step 406). Processing of steps 307-310 is the same as the case of the real image of drawing 4 R> 4. In addition, when transmitting an alternative image to a partner terminal, processing of a direction in which the output of the analog-to-digital conversion section 6 is changed into a YUV format among processings of the format conversion section 7 stops.

[0033] What is necessary is to create beforehand two or more alternative image definition data, and just to register them, in order to transmit the alternative image of an animation instead of a still picture. CG processing section 3 compounds said CG data continuously for every alternative image definition data based on these alternatives image definition data. This realizes transmission of the alternative image of an animation.

[0034] Moreover, if it not only sends the alternative image which imitated a user's face, but it prepares CG data of a that it is "under [ animation transmitting ]" etc. saying character string and alternative image definition data define the arrangement location of the pointer to this CG data, and these CG data, into an alternative image, a character string can be added and it can transmit ( drawing 9 ). With the transmitting-side TV phone equipment of drawing 9 (b), to a receiving-side user's real image being reflected, the alternative image of a transmitting-side user's animation is reflected, and the that it is "under [ animation transmitting ]" saying comment is further added to the alternative image with the receiving-side TV phone equipment of drawing 9 (a).

[0035] Moreover, the image which a user transmits through the user interface processing section 4 suitably can be chosen and changed to change the alternative image transmitted during a message. For example, what is necessary is for a user just to choose the carbon button displayed as "laughter" to send the expression at which it laughed, and just to choose the carbon button displayed as the "resentment" to send an angry expression ( drawing 10 ).

[0036] CG data of the expression at which it laughed and alternative image definition data, CG data of an angry expression and alternative image definition data, CG data of the expression to lament, alternative image definition data, etc. are beforehand prepared for ROM1, and CG processing section 3 compounds CG data based on the alternative image definition data corresponding to a user's selection, and generates an alternative image. The still picture and animation of expression at which it is laughing can be sent by this, the angry still picture and angry animation of expression can be sent, or the still picture and animation of expression which are lamented can be sent.

[0037] Moreover, when it is judged that the real image photoed with the image sensor 10 may be sent during transmission, a user chooses the carbon button displayed as the "camera" of drawing 10 R> 0. Thereby, CG processing section 3 suspends the output of the alternative image to the image compression elongation section 8, and since processing of the format conversion section 7 which changes the output of the analog-to-digital conversion section 6 into a YUV format is made to resume, processing of an image changes from steps 404-406 of drawing 5 to processing of steps 304-306 of drawing 4.

[0038] Drawing 11 is the flow chart Fig. showing the procedure of reception of TV phone equipment. The wireless recovery of the received wave which was sent out from the base station and received with the radio antenna 11 is carried out by the wireless strange recovery section 13 (step 501,502), and the



baseband strange recovery section 12 carries out the baseband recovery of the signal inputted from the wireless strange recovery section 13 (step 503). The demultiplexing section 9 divides into a sound signal and a video signal the multiplexed signal inputted from the baseband strange recovery section 12 (step 504).

[0039] The digitized voice signal with which the speech compression elongation section 16 was inputted into the speech processing side from the demultiplexing section 9 is elongated (step 505), and the analog-to-digital conversion section 15 changes this elongated digitized voice signal into an analog sound signal, and outputs it to a loudspeaker 17 (step 506). In this way, the voice of a transmitting side is outputted from a loudspeaker 17 (step 507).

[0040] On the other hand, the image compression elongation section 8 elongates the digital video signal inputted from the demultiplexing section 9 (step 508), the format conversion section 7 carries out format conversion of the YUV signal inputted from the image compression elongation section 8, and the analog-to-digital conversion section 6 changes into an analog video signal the digital video signal inputted from the format conversion section 7, and it outputs it to a display device 5 at an image processing side (step 509). In this way, the image of a transmitting side is displayed on the screen of a display device 5 (step 510).

[0041] Although mobile videophone equipment was mentioned as the example and the gestalt of [gestalt of the 2nd operation] the 1st operation explained it, it cannot restrict to this and the TV phone of the transmission system can be realized by changing the baseband strange recovery section 12, the wireless strange recovery section 13, and a radio antenna 11 into the equipment for the transmission systems of arbitration. Thereby, the cable television telephone using PSTN (Public Switched Telephone Network) or ISDN (Integrated Service Digital Network) is realizable similarly.

[0042]

[Effect of the Invention] By establishing an image pick-up means to photo a message person's image, a storage means to memorize beforehand the alternative image used as instead of [ of a message person's real image ], and a processing means to take out an alternative image from this storage means, and to transmit to the other party according to this invention A message person's feeling can be transmitted by the image, a message person being able to tell that it is in the condition out of which it is hard to come to a screen, and protecting privacy instead of a message person's real image, by transmitting alternative images, such as a still picture of a portrait, and an animation, to the terminal of a communications partner. Moreover, since the dynamic image which imitated a message person's expression can be transmitted, for a communications partner, a TV phone communication link can make sense of incongruity there be nothing.

[0043] Moreover, an alternative image can be transmitted to a partner terminal, without requiring the regenerative function of dedication of a partner terminal by changing an alternative image into a video-signal format of TV phone equipment, and transmitting.

[0044] Moreover, a message person can choose the alternative image stored in the storage means, or the real image photoed with the image pick-up means, and can make it transmit.

[0045] Moreover, a character string can be transmitted and displayed on the other party by including a character string in an alternative image.

[0046] Moreover, the alternative image of the expression at which a message person can choose the alternative image which should be transmitted out of two or more alternative images prepared beforehand, and can make transmit, for example, it is laughing can be sent, the alternative image of an angry expression can be sent, or the alternative image of the expression currently lamented can be sent.

[0047] Moreover, a message person can choose freely the components image which serves as a component of an alternative image out of two or more components images prepared beforehand, can make an alternative image generate, with a telephone equipment simple substance, can edit and create an alternative image and can transmit.

[0048] Moreover, a message person can change the color of a components image freely, and can make an alternative image generate.

[0049] Moreover, a message person can set up the location of the components image in an alternative

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**TECHNICAL FIELD**

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PRIOR ART

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**EFFECT OF THE INVENTION**

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[0047] Moreover, a message person can choose freely the components image which serves as a component of an alternative image out of two or more components images prepared beforehand, can make an alternative image generate, with a telephone equipment simple substance, can edit and create an alternative image and can transmit.

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TECHNICAL PROBLEM

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the example of 1 configuration of the mobile videophone equipment used as the gestalt of operation of the 1st of this invention.

[Drawing 2] It is the flow chart Fig. showing the TV phone dispatch procedure sent from the mobile videophone equipment of drawing 1 .

[Drawing 3] It is the flow chart Fig. showing the TV phone arrival procedure of receiving a message with the mobile videophone equipment of drawing 1 .

[Drawing 4] It is the flow chart Fig. showing the procedure in which a real image is transmitted to a partner terminal in the gestalt of operation of the 1st of this invention.

[Drawing 5] It is the flow chart Fig. showing the procedure in which an alternative image is transmitted to a partner terminal in the gestalt of operation of the 1st of this invention.

[Drawing 6] It is drawing showing a format of alternative image definition data.

[Drawing 7] It is drawing showing the creation screen of an alternative image.

[Drawing 8] It is drawing showing the situation when operating the tool bar of a creation screen.

[Drawing 9] It is the external view showing the situation under message of transmitting-side TV phone equipment and receiving-side TV phone equipment.

[Drawing 10] It is drawing showing the appearance of the screen of the display device of the TV phone equipment under message.

[Drawing 11] It is the flow chart Fig. showing the procedure of the reception in the gestalt of operation of the 1st of this invention.

[Description of Notations]

1 --EEPROM, 2 --RAM, and 3 -- CG processing section, 4 -- user interface processing section, 5 -- display device, and 6 -- the analog-to-digital conversion section, 7 -- format conversion section, 8 -- image compression elongation section, and 9 -- the demultiplexing section, 10 -- image sensor, 11 -- radio antenna, and 12 -- the baseband strange recovery section, 13 -- wireless strange recovery section, 14 -- microphone, and 15 -- the analog-to-digital conversion section, 16 -- speech compression elongation section, and 17 -- loudspeaker.

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[Translation done.]

## \* NOTICES \*

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

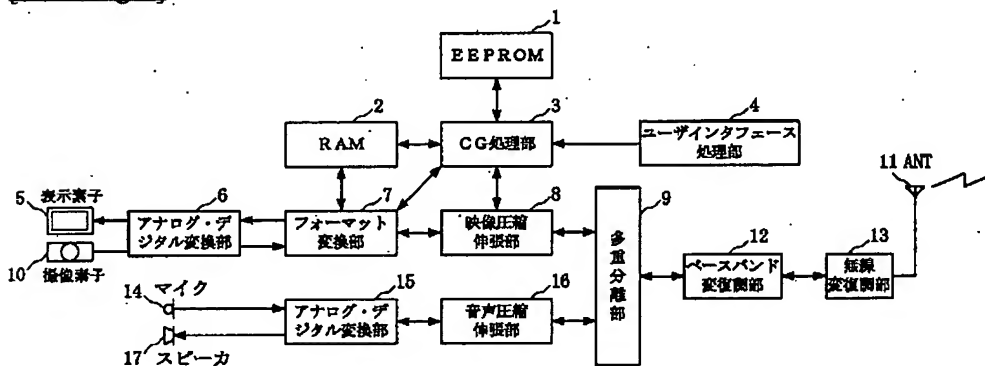
1. This document has been translated by computer. So the translation may not reflect the original precisely.

2. \*\*\*\* shows the word which can not be translated.

3. In the drawings, any words are not translated.

## DRAWINGS

[Drawing 1]



3: CG processing

7: Format Conversion

8: Image Compression

4: User interface

5: Display

6: A/D, D/A

10: Image pen

9: MUX/DEMUX

12: Baseband processing unit

16: Voice codec

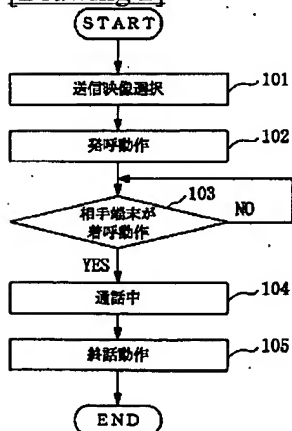
13: Wireless processing unit

14: microphone

15: A/D, D/A

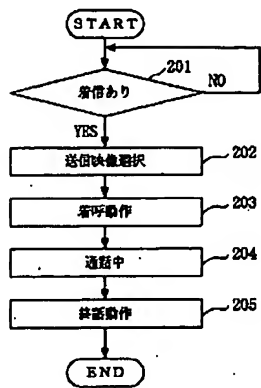
17: loud speaker

[Drawing 2]

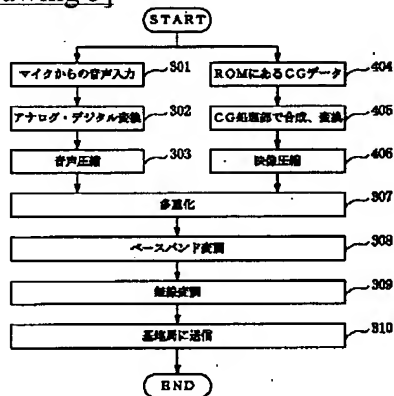


[Drawing 3]





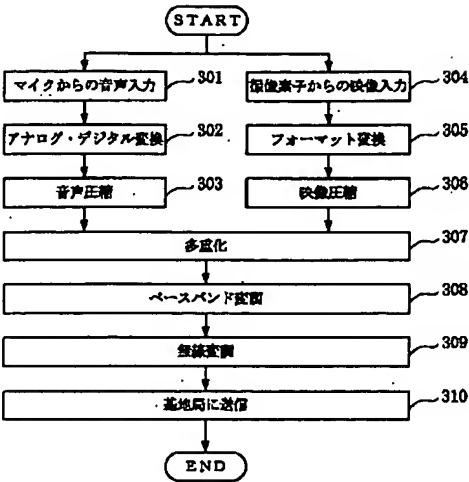
[Drawing 5]



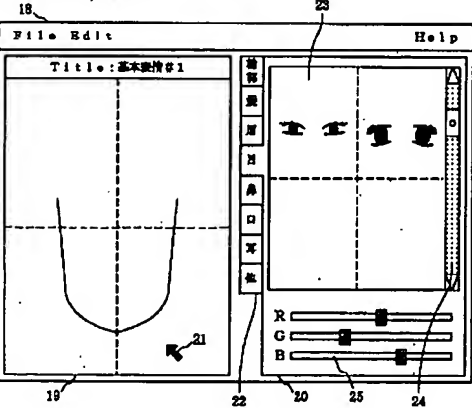
[Drawing 6]

ファイル長	
音声ファイルへのポインタ	記憶位置
ヘルスデータへのポインタ	記憶位置
原ファイルへのポインタ	記憶位置
目ファイルへのポインタ	記憶位置
表ファイルへのポインタ	記憶位置
ロファイルへのポインタ	記憶位置
マファイルへのポインタ	記憶位置
アクセサリファイル1へのポインタ	記憶位置
...	
アクセサリファイルnへのポインタ	記憶位置

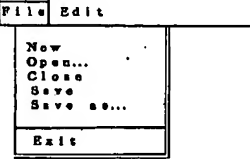
[Drawing 4]



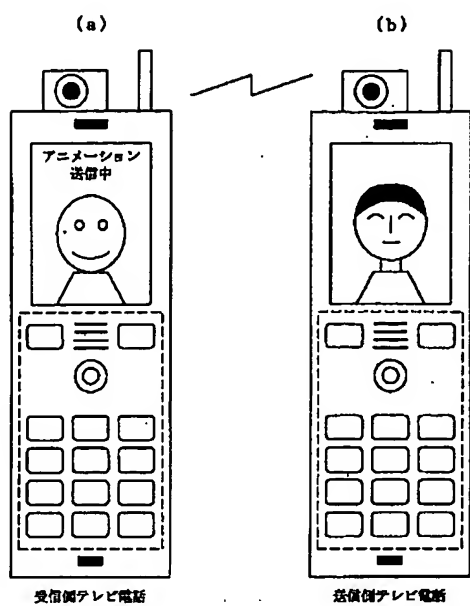
[Drawing 7]



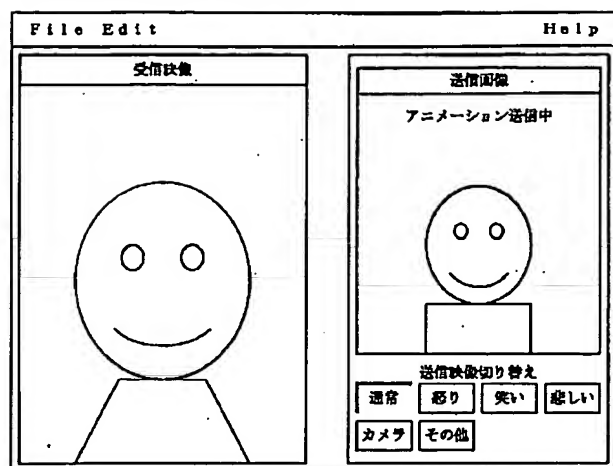
[Drawing 8]



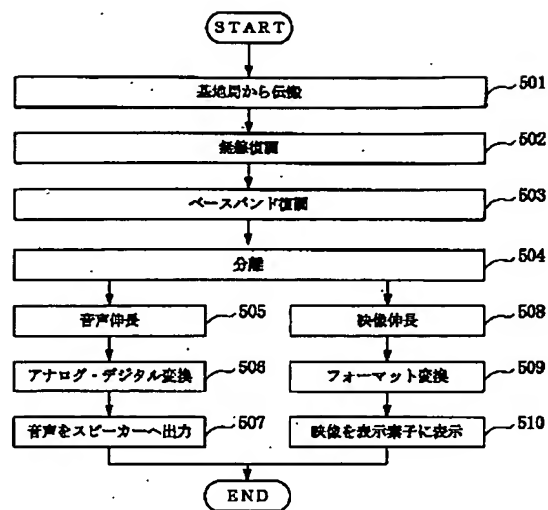
[Drawing 9]



[Drawing 10]



[Drawing 11]



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[Translation done.]